

ABSTRACT OF THE DISCLOSURE

Equalizer updating and accurate sampling rate control in a DMT receiver are simultaneously performed using a known signal, such as a pilot tone. The known signal is separated into its real and imaginary components. The equalizer uses separate mechanisms to process the real and imaginary components. The real component is used to control sampling rate timing in the receiver. The imaginary component of the received signal is used in an equalization adaptation procedure, e.g., updating an equalizer coefficient value. In one example embodiment, the real component of the received signal is set to zero for purposes of equalization, and the unequalized, real component is used to recover/track sampling rate timing. Because the real component has not been equalized, simultaneous timing recovery/tracking and equalization is achieved. Only the imaginary component is equalized and used to update the equalizer coefficient value. Thereafter, the unequalized real component and the equalized imaginary component are combined. In another example embodiment, a real-valued equalizer coefficient is determined for the known signal. Both real and imaginary components of the known signal are equalized with the real-valued equalizer coefficient. The so-equalized real component adapts to a normalized amplitude for the timing control signal which is desirable in certain timing control applications. The equalized real and imaginary components are combined. The equalizer coefficient is updated using only the imaginary component of the received signal.